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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,934	03/15/2004	J. Kevin Cammack	NDTCO.010A	1283

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KNOBBE MARTENS OLSON & BEAR LLP  
2040 MAIN STREET  
FOURTEENTH FLOOR  
IRVINE, CA 92614

EXAMINER
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PRITCHETT, JOSHUA L

ART UNIT	PAPER NUMBER
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2872

NOTIFICATION DATE	DELIVERY MODE
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04/03/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com  
eOAPilot@kmob.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/800,934	<b>Applicant(s)</b> CAMMACK ET AL.	
	<b>Examiner</b> JOSHUA L. PRITCHETT	<b>Art Unit</b> 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) 22-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☒ Claim(s) 17-21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/04, 11/04</u> .   | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-21, drawn to a method for extending the lifetime of a photorefractive material, classified in class 372, subclass 102.
- II. Claims 22-42, drawn to a photorefractive article, classified in class 526, subclass 292.2.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the method does not require the photorefractive material in contact with a substrate.

Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

- (a) the inventions have acquired a separate status in the art in view of their different classification;
- (b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;

- (c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);
- (d) the prior art applicable to one invention would not likely be applicable to another invention;
- (e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

**Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.**

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either

instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

During a telephone conversation with Joseph Mallon on March 19, 2008 a provisional election was made without traverse to prosecute the invention of I, claims 1-21. Affirmation of this election must be made by applicant in replying to this Office action. Claims 22-42 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102,

103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained.

Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

### ***Claim Objections***

Claims 17-21 objected to because of the following informalities: claim 17 states, “the amorphous photorefractive material”. There is not prior reference to the photorefractive material being amorphous. The remaining claims depend from claim 17 and inherit the deficiencies thereof. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 9 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Linke (US 6,363,097).

Regarding claim 1, Linke discloses providing a photorefractive material wherein the photorefractive material has an optical property that degrades when the photorefractive material is maintained at a temperature in the range of T1 to T2 (abstract) heating the photorefractive material to a temperature T3 or higher for an annealing time that is effective to maintain or at least partially restore the optical property wherein T3 is greater than T2 (abstract) and cooling the photorefractive material to a temperature in the range of T1 and T2 (abstract).

Regarding claim 9, Linke discloses at least a portion of the photorefractive material forms a second phase (DX centers) within the photorefractive material when the photorefractive material is maintained at a temperature in the range of T1 to T2 (abstract).

Regarding claim 10, Link discloses the photorefractive material and the second phase combine to form a single phase (DX centers ionize) during the heating of the photorefractive material to the temperature T3 for the annealing time (abstract).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-4, 11, 12, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linke (US 6,363,097).

Regarding claims 2-4, Linke teaches the photorefractive material has a glass transition temperature that is about T2 or less (abstract; the operating range for the material can be up to the glass transition temperature which is within the broadest reasonable interpretation of about). Linke lacks reference to a specific temperature. Linke suggests a low operating temperature will slow degradation (abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Linke invention include the claimed temperatures because Linke suggests low operating temperatures to slow the degradation process which saves the time and expense of the annealing process.

Regarding claims 11 and 12, Linke teaches the invention as claimed but lacks reference to specific temperatures. Linke teaches the annealing temperature is above the operating temperature range. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Linke invention include the claimed annealing temperature for the purpose of sustaining the optical property as long as possible during operation.

Regarding claims 15 and 16, Linke teaches the invention as claimed but lacks reference to the annealing time. It is extremely well known in the art to anneal materials for periods of time on the order of an hour. Official Notice is taken. It would have been obvious to one of

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ordinary skill in the art at the time the invention was made to have the Linke invention use the claimed annealing time as is known in the art for the purpose of saving the energy cost to heat to higher temperatures but achieving more complete phase homogeneity during the annealing process.

Claims 5-7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linke (US 6,363,097) in view of Yamamoto (US 6,653,421).

Linke teaches the invention as claimed but lacks reference to the specific temperatures. Yamamoto teaches the claimed temperatures (col. 15 lines 65-65; col. 16 lines 1-5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have Linke use the claimed temperatures as taught by Yamamoto for the purpose of using a known material to achieve a predictable result.

Claims 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linke (US 6,363,097) in view of Alexander (US 5,787,102).

Linke teaches the invention as claimed but lacks reference to the specific temperatures. Alexander teaches the claimed temperatures (col. 4 lines 1-3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have Linke use the claimed temperatures as taught by Alexander for the purpose of using a known material to achieve a predictable result.

Claims 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linke (US 6,363,097) in view of Lee (US 5,308,804).

Linke teaches heating of the photorefractive material is repeated (abstract). Link lacks reference to the cooling rate. Lee suggests the claimed cooling rate (col. 4 lines 25-31). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Linke invention include the claimed cooling rates as suggested by Lee for the purpose of forming multiple small grains to enhance the strength of photorefractive material.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHUA L. PRITCHETT whose telephone number is (571)272-2318. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joshua L Pritchett/  
Primary Examiner  
Art Unit 2872